pole piece would enter one wing D′, for example, and flow along the core and through the windings and, out of the wing D^3 to the south pole piece, thereby inducing a current flow in one direction through the wire of the coils.

As the core continues to rotate, it next brings the wing D^4 in juxtaposition to the second north pole piece which will be at the opposite end from the north pole piece first mentioned and the wing D^2 will be brought into juxtaposition to the second south pole piece which lies at the end opposite to that at which the first mentioned south pole piece is located, whereupon the magnetic lines of force will enter said wing D^4 and flow along the core and thence through the wing D^2 to a south pole piece, thereby going through the windings in the opposite direction and inducing in the wire of the coils a current flow in the direction which is opposite to that first referred to. The device shown, has, therefore, a great advantage over other magneto-electro machines used for this purpose, especially such machines as are used upon automobiles, because such other devices do not become sufficiently active to produce the desired result until they come into rapid rotation, and therefore, it is usually necessary to provide an auxiliary device of some sort as a dry battery to produce the igniting sparks necessary to put the engine in operation.

Having thus described my invention, I claim:

In a magneto-electric machine, the combination of a spool on which are armature windings, and a rotatable core passed axially through said spool and having, at one end of the spool, two diametrically opposed projecting wings, and having at the other end of said spool two opposed projecting wings lying in the same diametrical plane with the two first mentioned wings, with a pair of magnets having pole pieces whose faces are concentric with the axis of said core and lie outside the radial length of the said wings but closely adjacent thereto, inclosing the path of movement of the wings beneath the same, which pieces are of opposite polarity at the opposite ends of the same side of the machine and of opposite polarity on the opposite sides of the same end of the machine.

In testimony whereof, I hereunto affix my signature in the presence of two witnesses.

JOSEPH A. WILLIAMS.

Witnesses:

J. M. WOODWARD,

E. B. GILCHREST.